

# On the identity of an enigmatic *Delias* from New Britain, Papua New Guinea: *Delias mayrhoferi* BANG-HAAS, 1939 and *Delias shunichii* MORITA, 1996, syn. n. (Lepidoptera: Pieridae)

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**Abstract:** The description of *Delias mayrhoferi* BANG-HAAS, 1939, published without figures in a German journal at the eve of World War II, is little known and has been overlooked by many authors. The syntype series is figured for the first time, the conspecificity of *Delias mayrhoferi* and *Delias shunichii* MORITA, 1996 (syn. n.) is established, and the available information about this rare species is summarised.

**Die Identität einer wenig bekannten *Delias*-Art aus Neubritannien, Papua-Neuguinea: *Delias mayrhoferi* BANG-HAAS, 1939 und *Delias shunichii* MORITA, 1996, syn. n. (Lepidoptera: Pieridae)**

**Zusammenfassung:** Die Beschreibung von *Delias mayrhoferi* BANG-HAAS, 1939, die ohne Abbildungen und in deutscher Sprache kurz vor Ausbruch des 2. Weltkriegs veröffentlicht wurde, ist vielfach übersehen worden und blieb manchen Autoren bis heute unbekannt. Die Syntypenserie wird erstmals abgebildet, die Identität von *Delias mayrhoferi* und *Delias shunichii* MORITA, 1996 (syn. n.) wird festgestellt und die wenigen bekannten Fakten über diese seltene Art werden zusammengefaßt.

## Introduction

During the course of a longer-term project to document primary butterfly type specimens in museum collections in Germany (GART), 3 type specimens of an unknown *Delias* taxon were found and photographed in the collections of the Museum für Naturkunde Berlin [formerly: Museum für Naturkunde der Humboldt-Universität, Berlin] (MNHU), and the Staatliches Museum für Naturkunde, Stuttgart (SMNS), for inclusion in the GART/GLOBIS DATABASE (see HÄUSER et al. 2004). As indicated on attached labels, the specimens were found to be the syntypes of *Delias mayrhoferi* BANG-HAAS, 1939, a species described from New Britain, Papua New Guinea, and rarely considered since its original description.

While attempting to place this species within a current taxonomy of the genus *Delias* for the purpose of providing an updated global checklist and classification of the family Pieridae as a contribution from the GART/GLOBIS project to the “CATALOGUE OF LIFE – ANNUAL CHECKLIST” project, it became apparent that this nominal taxon had been overlooked hitherto by most authors and experts, and that little subsequent taxonomic information was available. When comparing the photographed type specimens of *D. mayrhoferi* with the illustrations of another, more recently described species from New Britain, *Delias shunichii* MORITA, 1996, however, it was

discovered that these two taxa are apparently identical. The purpose of this paper is to establish the synonymy of these two nominal taxa, and to summarize the available information about this enigmatic species.

## Results

In August 1939, Otto BANG-HAAS described in a paper in German language a new *Delias* species as *Delias mayrhoferi* from “Neupommern”, the former German name for New Britain (BANG-HAAS 1939b). The taxon was based on 2 ♂♂ and 1 ♀ syntypes, and the origin of the material and type locality was indicated as “Neupommern, Südöstl. Baininger Alpen” [= New Pomerania, south-eastern Baininger Alps]. The descriptive text characterizes in sufficient detail the upper- and under-side wing patterns of both ♂ and ♀, and compares the new species to *D. eximia* ROTHSCILD, 1925, but was not accompanied by any illustration. While there was no explicit indication of the depository of the type specimens, it can be presumed that they remained in the collection of the author, which of course also formed part of the sales stock of the well-known entomological supply company of STAUDINGER & BANG-HAAS, based in Dresden, Germany, at that time. Otto BANG-HAAS had presented his Lepidoptera types before his death to MNHU, and apparently the primary types were moved together with the palaearctic Lepidoptera collection of Otto STAUDINGER to Berlin in early 1949 (HOLIK 1952). No further published information about the later depository of the type specimens of *D. mayrhoferi* seems available, but all 3 syntypes were discovered during systematic documentations of primary butterfly type specimens in German museum collections for the GART/GLOBIS project.

1 ♂ and 1 ♀ syntype of *Delias mayrhoferi* BANG-HAAS, 1939 are still preserved at MNHU, Berlin, where they were documented with digital photography in 2004 during a survey of Papilionidae and Pieridae primary type specimens in the MNHU collections. Both specimens bear printed locality labels reading simply “Neupommern”, a printed “Type O. B.-HAAS” type label, and a handwritten label “*Delias mayrhoferi* ♂ [or ♀]/Type O. B.-HAAS”, apparently from the hand of Otto BANG-HAAS (Figs. 1–2). In addition, both specimens bear an orange coloured cardboard with a round, red-ringed handwritten label reading “L[ectotype] ♂ 10367 ER” and “LP [=

paralectotype] ♀ 10368 ER” respectively, from the hand of the late Eduard REISSINGER. The identity of the handwriting and these labels is clearly evident from many specimens in the REISSINGER collection now preserved at SMNS. Apparently REISSINGER, who had established a comprehensive collection of black & white photographs of Pierid type specimens from many museums in Europe and around the World for which he used these types of labels, had also planned a major revisionary work on *Delias*, which is evident from many specimens labelled as types of taxa to be described in his collection.

The third ♂ syntype is preserved at SMNS, where it was found rather accidentally when documenting representative Pieridae specimens of the REISSINGER collection (Fig. 3). It bears the same printed locality label, and a determination label “*mayerhoferi* [sic] Neu-Pommern”. The printed type-label is different from the MNHU specimens, it reads “Co-Type O. BANG-HAAS”, and it also carries a printed label with the numbers “6” and “04” of uncertain origin and meaning. In addition, the specimen bears a similar round red label from the hand of E. REISSINGER, which reads “P[aratype] ♂ 0211 ER”. The abdomen of the specimen is missing and probably was removed for preparing the genitalia, but no (genitalia) preparation is available at SMNS. According to a further printed label on blue cardboard, the specimen was obtained or purchased by REISSINGER in ix. 1961 from the company of Dr. [Eduard] REITTER, a well-known entomological dealer and supply shop based in Munich, Germany, who in turn apparently had received the specimen in viii. 1961 from someone named F. SCHMOCK, Vienna, Austria. Additional labels were added upon incorporation of the specimen in the SMNS collection and during documentation for the GART/GloBIS project. Although the entire REISSINGER collection was purchased by SMNS in 1976 and 1990, most of the manuscripts, notes and associated genitalia preparations remained with his family, and after the death of Eduard REISSINGER were handed over to or obtained by individual colleagues and other third parties. Thus, if a genitalia preparation exists, it is still to be (re-)located.

The type locality was stated as “Neupommern, Südöstl. Baininger Alpen” which equates today to the south-eastern Baining Mountains on the Gazelle Peninsula, New Britain. The collector was apparently Dr. A. MAYRHOFER as stated by BANG-HAAS (1939b): “Benannt zu Ehren des Fängers Dr. A. MAYRHOFER”, but no collecting date or any further information were given. As the printed locality labels of the type specimens only bear the word “Neu-Pommern” it is clear that BANG-HAAS must have had additional information about the locality and origin of the material. Earlier in the same year, in i. 1939, he had described a subspecies of *Chilasa moerleri* (AURIVILLIUS, 1919) under the name *Papilio mörneri mayrhoferi* (BANG-HAAS 1939a) from a single ♂ specimen from “Neupommern, Süd-Ost Baininger Alpen, 700 m”, also collected by MAYRHOFER. This holotype is now in the collection of the Staatliches Museum für Tierkunde

Dresden (NEKRUTENKO 2001), where it also has been documented for the GART/GLOBIS DATABASE project. It carries the same printed label “Neu-Pommern” as the *Delias mayrhoferi* syntypes plus an additional label in BANG-HAAS’ handwriting: “*Pap. mörneri mayrhoferi* OBH aberratio. Baininger Alp. Neupommern 700 m”.

We have not been able to establish any biographical data for Dr. A. MAYRHOFER. He does not appear in the “Collectiones entomologicae” compendium, which details the whereabouts of entomological collections up to 1960 (HORN et al. 1990), or in the updated online version of the same work (GROLL 2009), nor is he mentioned in the reviews of the biological and entomological exploration of Papua New Guinea provided by FRODIN & GRESSITT (1982) or PARSONS (1999).

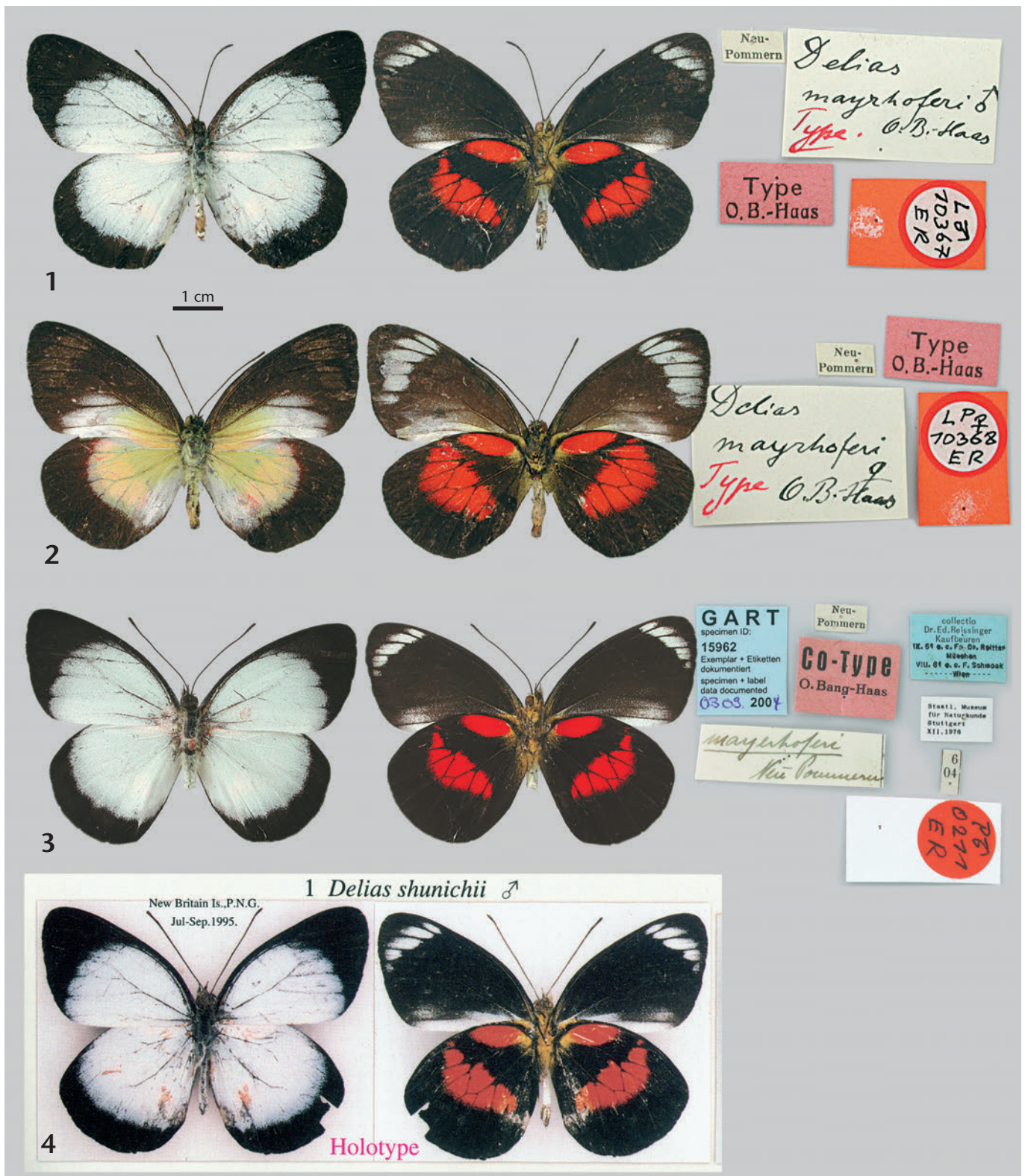
In v. 1996, Sadayuki MORITA described *Delias shunichii* as a new species from New Britain (MORITA 1996). The description is based on a single male holotype, which apparently is deposited in the private collection of the author in Tokyo, Japan. In the brief description the new species is compared to *Delias eximia* and to *D. messalina* ARORA, 1983, and placed in the *Delias nigrina* (FABRICIUS, 1775) species group. The description is accompanied by a colour illustration depicting the unique ♂ holotype, which is partly reproduced here (Fig. 4). In the text it is indicated that the specimen was taken during vii.–ix. 1995 on New Britain, without any further details of the locality or the collector.

In a more recent paper, GOTTS & GINN (2003) described and illustrated the previously unknown ♀ of *Delias shunichii* MORITA, based on a single specimen collected on 21. xii. 2001 at about 900 m elevation in East New Britain Province, on New Britain, again without indication of an exact locality. 2 ♂♂ taken on 2. xi. 2002, apparently collected at the same location, were also reported and described in the same paper.

Following the original description of *D. mayrhoferi*, no further material referred to by this name has apparently become available, and little secondary sources have considered this nominal taxon since its original description. Because of the date of publication (1. viii. 1939) close to the outbreak of the second World War, and the fact that the description in German language was not accompanied by any illustration, it was largely overlooked by later authors.

However, *Delias mayrhoferi* BANG-HAAS, 1939 was fully referenced with the citation of the original description in the Zoological Record for the year 1939, on p. 319. The taxon also appeared in an obituary of Otto BANG-HAAS in a list of Lepidoptera taxa named by that author (HOLIK 1952: 23), and it was listed as a separate species in the catalogue by BRIDGES (1988: II. 29). The name is not mentioned as a *Delias* taxon by D’ABRERA (1977), YAGISHITA et al. (1993) nor TUZOV (1995), and is also omitted in a recently published website of the “*Delias* of the world” managed by Les DAY. PARSONS (1999), in his





Figs. 1–4: Type specimens of *Delias mayrhoferi* BANG-HAAS, 1939, and *Delias shunichii* MORITA, 1996. Fig. 1: *Delias mayrhoferi*, ♂ syntype, MNHU. Fig. 2: *Delias mayrhoferi*, ♀ syntype, MNHU. Fig. 3: *Delias mayrhoferi*, ♂ syntype, SMNS. Left: upperside; centre: underside; right: labels. — Fig. 4: The holotype of *Delias shunichii* as figured by MORITA (1996: pl. 13, fig. 1). Left: upperside; right: underside.

monumental treatment of the butterflies of Papua New Guinea, makes no mention of either *Delias mayrhoferi* or *Delias shunichii*.

Through comparison of the original descriptions and especially the photographed type specimens of the two nominal taxa, it is apparent that they represent the same species. In consequence, we propose here the following synonymy:

### *Delias mayrhoferi* BANG-HAAS, 1939

Originally described as: *Delias mayrhoferi*, species nova.

Entomologische Zeitschrift, 53 (17): 134.

Type locality: [Papua New Guinea]: “Neupommern, Süd-östl. Baininger Alpen”, [= New Britain, Gazelle Peninsula, SE Baining Mts.].

Type material: 2 ♂♂, 1 ♀ syntypes, A. MAYRHOFFER leg.: 1 ♂, 1 ♀, MNHU [examined]; 1 ♂, SMNS [examined].

= *Delias shunichii* MORITA, 1996 — **syn. n.**  
 Originally described as: *Delias shunichii*, sp. nov.  
 Wallace, 2: 1, pl. 13, fig. 1.  
 Type locality: [Papua New Guinea]: “New Britain Is.”  
 Type material: Holotype ♂, VII–IX. 1995, MORITA coll., Tokyo  
 [original illustration examined].

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## References

- BANG-HAAS, O. (1939a): Neubeschreibungen und Berichtigungen der Exotischen Macrolepidopterenfauna II. — Entomologische Zeitschrift, Stuttgart, 52 (39): 301–302.
- (1939b): Neubeschreibungen und Berichtigungen der Exotischen Macrolepidopteren III. — Entomologische Zeitschrift, Stuttgart, 53 (17): 134.
- BRIDGES, C. A. (1988): Catalogue of Papilionidae & Pieridae (Lepidoptera: Rhopalocera). — Urbana, Ill. (privately printed), 324 pp.
- D'ABRERA, B. (1977): Butterflies of the Australian region. Second edition. — Melbourne (Lansdowne), 415 pp.
- FRODIN, D. G., & GRESSITT, J. L. (1982): I. Biological exploration of New Guinea. — Pp. 87–130 in: GRESSITT, J. L. (ed.), Biogeography and ecology of New Guinea. Volume 1. Part 2. Man and his impact on the environment. — Monographiae biologicae, 42. — Den Haag (W. Junk), VII + 533 pp.
- GOTTS, R. I. C., & GINN, S. E. (2003): The previously undescribed female of *Delias shunichii* MORITA (Lepidoptera: Pieridae) from New Britain, Papua New Guinea. — The Australian Entomologist, Indooroopilly, 30 (1): 1–4.
- HÄUSER, C. L., HOLSTEIN, J., & STEINER, A. (2004): Das globale Artregister Tagfalter — GART: Ein Web-basiertes Informationssystem. — Mitteilungen der Deutschen Gesellschaft für allgemeine und angewandte Entomologie, Halle/Saale, 14: 145–148 (3 figs.).
- HOLIK, O. (1952): In memoriam Otto Bang-Haas. — Zeitschrift für Lepidopterologie, Krefeld, 2 (1): 7–23.
- HORN, W., FRIESE, G., KAHLE, I., & GAEDIKE, R. (1990): Collectiones entomologicae. Ein Kompendium über den Verbleib entomologischer Sammlungen der Welt bis 1960. Teil I: A bis K. Teil II: L bis Z. — Berlin (Akademie der Landwirtschaftswissenschaften der Deutschen Demokratischen Republik), 573 pp.
- MORITA, S. (1996): A new species of the genus *Delias* from New Britain Is., Papua New Guinea (Lepidoptera Pieridae). — Wallace, Tokyo, 2: 1, pl. 13.
- NEKRUTENKO, Y. P. (2001): A catalogue of the type specimens of Papilionidae deposited in the collection of the Staatliches Museum für Tierkunde Dresden (Insecta: Lepidoptera: Rhopalocera). — Entomologische Abhandlungen Staatliches Museum für Tierkunde Dresden, 59 (14): 405–453.
- PARSONS, M. (1999): The butterflies of Papua New Guinea. Their systematics and biology. — London, San Diego etc. (Academic Pr.), XVI + 736 pp., XXVI b/w pls., 136 col. pls.
- TUZOV, V. K. (1995): The checklist of the genus *Delias* HÜBNER, 1819 (Lepidoptera, Pieridae). — Actias, Moscow, 2 (1/2): 111–123.
- YAGISHITA, A., NAKANO, S., & MORITA, S. (1993): An illustrated list of the genus *Delias* of the world. — Tokyo, Singapore (Khepera). Vol. 1 [text]: XIV + 384 + 4 pp., vol. 2: IX + 409 + VI pp.

## Internet references

- CATALOGUE OF LIFE — ANNUAL CHECKLIST project. — URL: [www.catalogueoflife.org/annual-checklist/2008/search.php](http://www.catalogueoflife.org/annual-checklist/2008/search.php). — Last consulted 2. i. 2009.
- DAY, L. (2009): *Delias* of the world. — URL: [www.delias-butterflies.co.uk/index.html](http://www.delias-butterflies.co.uk/index.html). — Last consulted 2. i. 2009.
- GART/GLOBIS DATABASE project. — URL: [www.science4you.org/platform/lex/globis/species/tree/index.do](http://www.science4you.org/platform/lex/globis/species/tree/index.do). — Last consulted 2. i. 2009.
- GLOBALES ARTENREGISTER TAGFALTER (GART)/GLOBAL BUTTERFLY INFORMATION SYSTEM (GloBIS). — URL: [www.science4you.org/platform/lex/globis/home/index.do](http://www.science4you.org/platform/lex/globis/home/index.do). — Last consulted 2. i. 2009.
- GROLL, E. K. (ed.) (2006): Entomologen der Welt (Biographien, Sammlungsverbleib). Datenbank 2. Version, DEI im ZALF e.V. — URL: [www.zalf.de/home\\_zalf/institute/dei/php/forschung/fo\\_themen.php?Nr=36](http://www.zalf.de/home_zalf/institute/dei/php/forschung/fo_themen.php?Nr=36) — last consulted 2. i. 2009.

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